Food and Agriculture Organization of the United Nations

UN environment programme

UNITED NATIONS DECADE ON ECOSYSTEM RESTORATION 2021-2030

GLOBAL INDICATORS FOR MONITORING ECOSYSTEM RESTORATION

A contribution to the UN Decade on Ecosystem Restoration

SHOUT
SHARE
IT

Cover photo
© CIFOR / Ramadian Bachtiar

GLOBAL INDICATORS FOR MONITORING ECOSYSTEM RESTORATION

A contribution to the UN Decade on Ecosystem Restoration

Food and Agriculture Organization of the United Nations
Rome, 2022

REQUIRED CITATION:
FAO and UNEP. 2022. *Global indicators for monitoring ecosystem restoration – A contribution to the UN Decade on Ecosystem Restoration.* Rome, FAO. https://doi.org/10.4060/cb9982en

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

ISBN 978-92-5-136152-8
© FAO, 2022

Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons licence. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original [Language] edition shall be the authoritative edition."

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization http://www.wipo.int/amc/en/mediation/rules and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

Third-party materials. Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

Sales, rights and licensing. FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org. Requests for commercial use should be submitted via: www.fao.org/contact-us/licence-request. Queries regarding rights and licensing should be submitted to: copyright@fao.org.

CONTENTS

Acknowledgements iv
Abbreviations and acronyms v

1 **Introduction** 1

1.1 Overview of ecosystem restoration 1
1.2 The UN Decade on Ecosystem Restoration 1
1.3 Purpose of this document 2

2 **Global indicators for monitoring the UN Decade** 3

2.1 Identification of global indicators 3
2.1.1 Consultative process 3
2.1.2 Analytical process 3
2.2 Prioritization of headline indicators 6
2.3 Summary 7
2.4 Additional data sources: commitments 9
2.4.1 National commitments 9
2.4.2 Non-state commitments 9

3 **The role of the FERM** 11

4 **Vision for reporting progress within the UN Decade on Ecosystem Restoration** 13

4.1 Annual live report 13
4.2 Online dashboard 13

5 **Recommendations for next steps** 15

References 17
Annex 18

ACKNOWLEDGEMENTS

The following document is the result of a joint effort by the Food and Agriculture Organization of the United Nations (FAO)and the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) in collaboration with members of the UN Decade on Ecosystem Restoration Task Force on Monitoring.

This document is the result of extensive consultations and review processes conducted through the Task Force on Monitoring during the years 2020–2022 with over 300 experts from various organizations providing valuable input. International experts with different expertise and background are thanked for their valuable contributions. Key contributors were Yoshihiko Aga, Blaise Bodin, Christophe Besacier, Adrien De Courcelles, Adebowale Daniel, Carolina Gallo Granizo, Monica Madrid Arroyo, Leticia Pina, Annelies Sewell, Khalil Walji, Faustine Zoveda and all participants that contributed to the Monitoring Task Force and its Sub-Task Force consultations.

Writing team

Lead authors: Pablo Martin (FAO), Zhuo Cheng (FAO) and Hazel Thornton (UNEP-WCMC).

Contributing authors: Yelena Finegold (FAO), Julian Fox (FAO), Matieu Henry (FAO), Emily Howland (UNEP-WCMC), Sebastian Kaye (UNEP-WCMC), Helen Klimmek (UNEP-WCMC) and Maria Nuutinen (FAO).

ABBREVIATIONS AND ACRONYMS

BLI	Bird Life International
CBD	Convention on Biological Diversity
FAO	Food and Agriculture Organization of the United Nations
FERM	Framework for Ecosystem Restoration Monitoring
GDP	Gross domestic product
GGW	Great Green Wall
ICAO	International Civil Aviation Organisation
IEA	International Energy Agency
ILO	International Labour Organization
INDC	Intended Nationally Determined Contributions
IRENA	International Renewable Energy Agency
ISO	International Organization for Standardization
ITF	International Transport Forum
ITU	International Telecommunication Union
IUCN	International Union for Conservation of Nature
MEA	Multilateral Environmental Agreement
NBSAP	National Biodiversity Strategies and Action Plan
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the United Nations High Commissioner for Human Rights
PBL	Netherlands Environmental Assessment Agency
SEEA	System of Environmental Economic Accounting
SER	Society for Ecological Restoration
SDG	Sustainable Development Goal
UIS	UNESCO Institute of Statistics
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGA	United Nations General Assembly
UNICEF	United Nations Children's Fund
UNFCCC	United Nations Framework Convention on Climate change
UNFPA	United Nations Population Fund

UNODC	United Nations Office on Drugs and Crime
UNSD	United Nations Statistics Division
UNSG	United Nations Secretary-General
UNSPF	United Nations Strategic Plan for Forests
UNWTO	United Nations World Tourism Organization
WCMC	World Conservation Monitoring Centre
WHO	World Health Organization
WOCAT	World Overview of Conservation Approaches and Technologies

01 INTRODUCTION

1.1 Overview of ecosystem restoration

As defined by FAO, ecosystem restoration encompasses a wide range of activities, employed singly or collectively, which aim to repair degraded ecosystems of all kinds. (FAO *et. al.*, 2021). Ecosystem restoration is crucial to avoid the decline of biodiversity, maintain human health and well-being, reverse land degradation, mitigate the impacts of climate change and increase food and water security (IPBES, 2019; Gann *et al.*, 2019; IPCC, 2017; UNEP, 2021). However, successful cases of ecosystem restoration remain elusive, and the science of ecosystem restoration is relatively young (Jones *et al.*, 2018, Cooke *et al.*, 2019).

Restoration differs largely between regions and ecosystem types in terms of spatial, temporal scale, and its monitoring directly depends on the selected metrics. Capturing the impact of restoration over time implies the establishment of mid- to long-term monitoring systems (Holl *et al.*, 2003, McCrackin *et al.*, 2017). More urgently, the knowledge of current and historical ecosystem conditions might not be enough under the biophysical changes expected due to future climate impacts (Harris *et al.*, 2006).

As ecosystem restoration has become a global concern, many ecosystem restoration initiatives are starting, supported by public and private commitments, national, regional and global goals and targets and public and private finance. There is a consensus that to be effective in the use of these resources we need a solid technological and scientific basis that provides evidence of restoration effects at a large scale in terms of time and space (Cooke *et al.*, 2019; Gann *et al.*, 2019). There is also a broad agreement that the participation of all public and private, global and local actors (including governments, industries, scientists, practitioners, local communities and the general public) is also essential to achieving successful results (Holl *et al.*, 2003; Cooke *et al.*, 2019; Gann *et al.*, 2019). International efforts involving a multitude of stakeholders have provided standards and principles for ecosystem restoration (Gann *et al.*, 2019; Aronson *et al.*, 2020; UNEP, 2021), and initiatives and assessments are assessing necessary data and tools to monitor ecosystem restoration at different scales from local to global. A recent example to monitor large-scale restoration projects is the monitoring of the Great Green Wall (GGW) in Africa. It is one of the largest terrestrial projects and targets at restoring 100 million hectares by 2030. Positive impacts of restoration and gain in biomass were observed using a standardized and innovative remote sensing methodology (Sacande *et al.*, 2021).

1.2 The UN Decade on Ecosystem Restoration

On 1 March 2019, under Resolution 73/284, the United Nations General Assembly (UNGA) proclaimed 2021–2030 to be the United Nations Decade on Ecosystem Restoration (hereafter 'the UN Decade'), with the primary aim being to prevent, halt and reverse the degradation of ecosystems worldwide. In the context of the UN Decade, ecosystem restoration refers to a wide continuum of practices and targeted ecosystem conditions that contribute to conserving and repairing damaged ecosystems. UNGA Resolution 73/284 highlights that ecosystem restoration can play a major role in achieving the objectives of the 2030 Agenda for Sustainable Development: ending poverty, conserving biodiversity, combating climate change, and improving livelihoods for everyone, everywhere. Contributions towards other related United Nations major outcome documents and multilateral environmental agreements, including the Paris Agreement adopted under the United Nations Framework Convention on Climate Change, and the achievement of the Aichi Biodiversity Targets 10 and the post-2020 global biodiversity framework are also recognized. To avoid extra reporting burdens, the UN Decade was developed with the view to employ and build upon existing data reporting systems within relevant international commitments, conventions and plans, rather than establish additional formal reporting burdens for countries.

To support implementation, the UN Decade has established 10 principles serving to underpin restoration efforts. Principle 9 'Monitoring and Management' highlights the importance of effective monitoring and reporting and is also essential to all of the three pathways described within the UN Decade Strategy, namely, building a global movement, generating political support, and building technical capacity (United Nations, 2021). In March 2020, the UN Decade on Ecosystem Restoration Task Force on Monitoring (hereafter the Monitoring Task Force) was launched. Structured as the core Monitoring Task Force and sub-Task Forces (Terrestrial; Aquatic and Transitional; and Socio-Economic), it brings together hundreds of technical experts from over 100 organizations[1] tasked with collaboratively developing a monitoring framework for the UN Decade.

1 The UN Decade on Ecosystem Restoration Task Force on Monitoring member affiliations extend to international organizations and all restoration stakeholders including NGOs, governmental agencies, academia and organizations implementing restoration initiatives across ecosystems.

With the overall objective of contributing to the implementation of the UN Decade as well as to the UN Secretary-General's reporting to the United Nations General Assembly (UNGA) at its eighty-first session (A/RES/73/284), the monitoring framework for the UN Decade intends to support monitoring and reporting of the progress and achievements of ecosystem restoration for the UN Decade (2021–2030). The framework was named the Framework for Ecosystem Restoration Monitoring (FERM).

1.3 Purpose of this document

This document summarizes the global-level indicators identified by the Monitoring Task Force and associated experts during 2020 and 2021 that could be utilized to report the progress of the UN Decade on an annual basis and to the UNGA in its eighty-first session (as requested in A/RES/73/284). In doing so, this document serves as a first draft global framework for monitoring and reporting progress in relation to the UN Decade.

The document is organized in four sections. **Section 1** presents the context. **Section 2** summarizes global indicators proposed to show the progress of ecosystem restoration throughout the UN Decade, as identified by the Monitoring Task Force and associated experts through two complementary processes, that will be incorporated in the FERM. Alongside details on the identified global indicators, there is a brief summary of additional sources of information that can be used for monitoring the UN Decade, including state and non-state actor commitments. **Section 3** outlines the role of the Framework of Ecosystem Restoration (FERM) and the links to the global indicators selected through this process whilst **Section 4** concludes with a proposed outline for annual reporting and reporting to the eighty-first session of the UNGA on the status of the implementation of UNGA Resolution 73/284, including its contribution to the implementation of the 2030 Agenda for Sustainable Development (A/RES/73/284).

02 GLOBAL INDICATORS FOR MONITORING THE UN DECADE

2.1 Identification of global indicators

This section summarises the process and results of the efforts undertaken by the Monitoring Task Force and its expert members during 2020–2022 in the identification of global-scale indicators to monitor and report upon the progress of ecosystem restoration during the UN Decade. Within this, two complementary identification processes were undertaken – a consultative and desk-based analytical process, as outlined below.

2.1.1 Consultative process

The consultative process involved the engagement of the over 200 members of the Monitoring Task Force, its three sub-Task Forces (Terrestrial; Aquatic and Transitional Waters; and Socio-economic) and associated experts through over 20 virtual consultations during 2020 and 2021. From these consultations, the sub-Task Forces identified a total of 56 SDG indicators and four Ramsar indicators.

Experts involved reviewed and provided expert opinion on the relevance of existing global indicators from the 2030 Agenda for Sustainable Development and other global multilateral environmental agreements, including the United Nations Framework Convention on Climate change (UNFCCC), United Nations Convention to Combat Desertification (UNCCD) and Ramsar Convention on Wetlands of International Importance. Indicators were assessed in terms of relevance to ecosystem restoration, feasibility for global reporting on the UN Decade, representation of ecosystems and socio-economic benefits.

The terrestrial sub-Task Force focused on global indicators relevant to farmlands, forests, grasslands, shrublands and savannahs, mountains and urban areas and identified 18 indicators. The aquatic and transitional sub-Task Force with its experts focused on global indicators relevant to freshwater, ocean and coasts and peatlands (including peatlands under cropland, grazing land, plantations, forestry and other land use) and identified 19 potential indicators for SDGs 6, 13 and 15, and Ramsar Convention goals and targets for further review and consolidation.

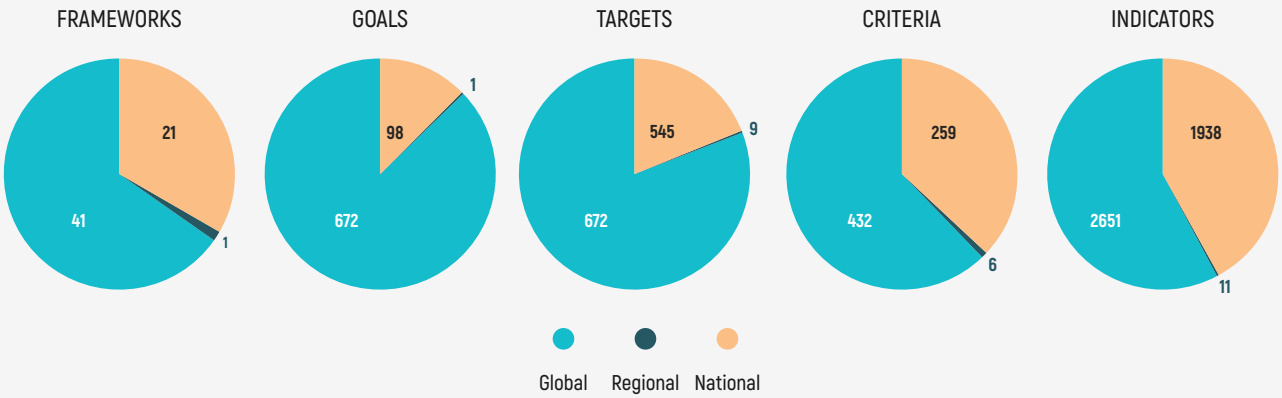
The socio-economic sub-Task Force focused on all ecosystems and organized consultations to identify relevant socio-economic indicators. For this purpose, around 60 academic papers and reports were reviewed to explore the main socio-economic topics addressed in different restoration interventions. Isolating the topics from each paper resulted in a total of 330 socio-economic topics. They were subsequently condensed into sub-domains and finally into five socio-economic domains (population characteristics, ecosystem services, economic, social and governance). Mapping SDG indicators to the sub-domains and filtering those that are being reported by more than 50 percent of UN Member States resulted in a list of 26 SDG indicators.

2.1.2 Analytical process

The analytical process involved a desk-based analysis of an indicator database to extract representative indicators for ecosystem restoration monitoring at multiple levels, taking into consideration national, regional and international frameworks and dimensions. As of 31 December 2021, the indicator database identified 63 frameworks and more than 4 600 indicators. For each framework, goals, criteria, targets and indicators have been extracted from their original document and organized hierarchically into the indicator database.

© FAO / Enric Català Conteras

FIGURE 1 Composition of the indicator database

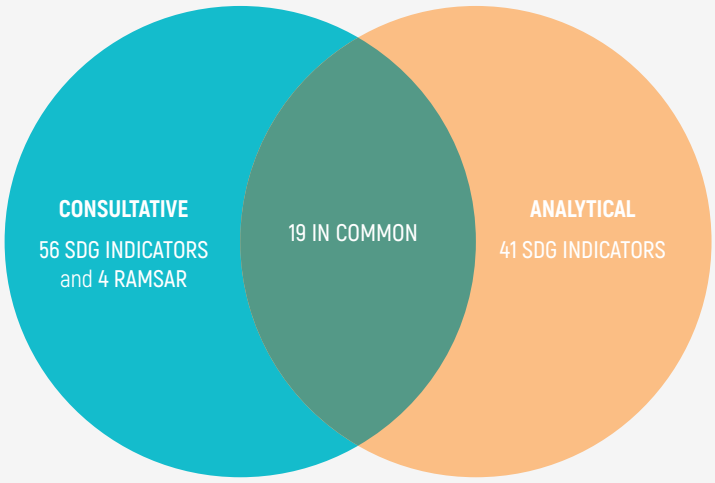


Source: Authors.

The organization of all indicators at different hierarchies in the indicator database is a crucial step to support the prioritization of indicators. Various indicators are very similar and redundant between the different frameworks but are named differently. The algorithm Top2Vec (Angelov, 2020) was used to explore the large volume of texts and discover the semantic structure, or topics present in these texts summarizing them in 45 topics, where a topic can be considered as a group of similar indicators.

These topics were subsequently mapped to SDG indicators by interpreting the topic and identifying the most representative SDG indicator with that topic. After examining all topics and eliminating similar meanings or duplicities, the 45 original topics were narrowed down to 41 SDG indicators.

FIGURE 2 Global indicators identified through the consultative and analytical process



Source: Authors.

Cumulatively, these processes identified 82 global indicators (see Annex) covering important frameworks highlighted in Resolution 73/284. Of these, 77 are SDG indicators (including UNCCD and UNFCCC indicators) and 4 are Ramsar indicators. Nineteen SDG indicators were identified by both processes. Figure 2 illustrates this relationship.

2.2 Prioritization of headline indicators

Based on the indicators identified from different processes, the Monitoring Task Force seeks to prioritize a smaller subset of headline indicators that are suitable for a dashboard for communicating progress. To achieve this objective, each indicator was assigned a score based on three dimensions (alignment to restoration, temporal relevance, and spatial coverage) adapted from *Indicators for the Post-2020 Global Biodiversity Framework* (CBD, 2021). The maximum score of each dimension is three, and the sum of the three dimensions is calculated to arrive at a final score. Specifically, alignment to restoration is defined as measuring the element (such as land, water, vegetation) being restored. Temporal relevance and spatial coverage are assessed based on the data series retrieved from the UN SDG indicator database, last updated on 21 December, 2021.

TABLE 1

Scoring matrix for prioritizing headline indicators

Score	Alignment to monitoring element	Temporal relevance	Spatial coverage
High/Good (3 points)	Measuring the element being restored	≥ 5 data points available for 2010-2020	5+ continents (>20 countries total)
Medium/ Moderate (2 points)	NA - no medium score defined	3-4 data points available for 2010-2020; or ≤2 data points available for 2010-2020 but will be updated annually or biannually in the future	3-4 continents (>10 countries total); or 5 + continents (<20 countries total)
Low/Poor (1 point)	No direct measurement of elements under restoration	≤2 data points are available between 2010- 2020	1-2 continents (no matter how many countries); or 3-4 continents (<10 countries total)
Unknown	NA - all indicators are assessed	Number of data points could not be validated	Spatial coverage could not be validated

Source: Authors adapted from Convention on Biological Diversity. *Indicators for the Post-2020 Global Biodiversity Framework* (2021).

After all indicators were scored, they were ranked from highest to lowest. Combining the scoring results and expert opinion, 20 indicators with a minimum score of 6 were selected as headline indicators. The scores are available in the full metadata table.

2.3 Summary

Table 2 below summarizes the 20 headline indicators. All of these indicators have good geographic coverage, and will have at least three data points for the UN Decade (2021–2030). In terms of SDG coverage, the headline indicators include SDG 1 (No poverty), SDG 2 (Zero hunger), SDG 6 (Clean water and sanitation), SDG 7 (Affordable and clean energy), SDG 12 (Responsible consumption and production), SDG 13 (Climate action), SDG 14 (Life below water) and SDG 15 (Life on land). These 20 headline indicators cover both biophysical and socio-economic aspects of restoration and provide good coverage of ecosystems.

TABLE 2

Summary of the headline indicators

Indicator code [Sustainable Development Goal (SDG[3])]	Indicator name	Decade's ecosystem restoration types[2]	Update frequency[3]	Institution
SDG[3] 1.2.1	Proportion of population living below the national poverty line, by sex and age	All types	Twice a year	World Bank
SDG[3] 2.1.1	Prevalence of undernourishment	All types	Annually	Food and Agriculture Organization of the United Nations (FAO)
SDG[3] 2.4.1	Proportion of agricultural area under productive and sustainable agriculture	Farmlands	Every 3 years	FAO
SDG[3] 6.1.1	Proportion of population using safely managed drinking water services	All types	Every 2 years	United Nations Children's Fund (UNICEF); World Health Organization (WHO)
SDG[3] 6.3.2	Proportion of bodies of water with good ambient water quality	Freshwater	Every 3 years	United Nations Environment Programme (UNEP)
SDG[3] 6.4.2	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	Freshwater; Farmlands; Mountains; Grasslands, Shrublands and Savannahs; Peatlands	Annually	FAO
SDG[3] 6.5.1	Degree of integrated water resources management	Freshwater	Every 3-4 years	UNEP
SDG[3] 6.6.1 (Ramsar[1] 8.6)	Change in the extent of water-related ecosystems over time	Freshwater; Farmlands; Mountains; Grasslands, Shrublands and Savannahs; Peatlands	Annually	UNEP, RAMSAR[1]
SDG[3] 7.2.1	Renewable energy share in the total final energy consumption	All types	Annually	International Energy Agency (IEA); United Nations Statistics Division (UNSD); International Renewable Energy Agency (IRENA)
SDG[3] 12.b.1	Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability	All types	Annually	United Nations World Tourism Organization (UNWTO)
SDG[3] 13.2.2 (UNFCCC)	"Total greenhouse gas emissions per year" as reported to UNFCCC as part of the enhanced transparency framework (ETF) mechanism	All types	Annually (Annex I Parties); Every 2 years (Non-Annex I Parties)	United Nations Framework Convention on Climate change (UNFCCC)
SDG[3] 14.4.1	Proportion of fish stocks within biologically sustainable levels	Oceans and coasts	Every 2 years	FAO
SDG[3] 14.5.1	Coverage of protected areas in relation to marine areas	Oceans and coasts	Annually	United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC); Bird Life International (BLI); International Union for Conservation of Nature (IUCN)
SDG[3] 14.b.1	Degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries	Oceans and coasts	Every 2 years from 2018	FAO
SDG[3] 15.1.1	Forest area as a proportion of total land area	Forests	Annually from 2015	FAO
SDG[3] 15.1.2	Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	Forests; Freshwater; Grasslands, Shrublands and Savannahs; Mountains; Peatlands	Annually	UNEP-WCMC; BLI; IUCN
SDG[3] 15.2.1	Progress towards sustainable forest management	Forests	Annually from 2015	FAO
SDG[3] 15.3.1 (UNCCD)	Proportion of land that is degraded over total land area	Farmland; Forests; Grasslands, Shrublands and Savannahs; Peatlands	Every 4 years from 2018	United Nations Convention to Combat Desertification (UNCCD); FAO; CBD; UNSD; UNEP; UNFCCC
SDG[3] 15.4.2	Mountain Green Cover Index	Mountains	Every 3 years	FAO
SDG[3] 15.5.1	Red List Index	All types	Annually	IUCN; BLI

Notes: UN Decade on Ecosystem Restoration focal ecosystems include: Farmlands; Forests; Freshwater; Grasslands, Shrublands, Savannahs; Mountains; Oceans and coasts; Peatlands; and Urban areas.

Sources: [1] Ramsar. 2021. National Report on the Implementation of the Ramsar Convention on Wetlands. 20 April 2022. https://www.ramsar.org/document/national-report-form-for-cop14-offline-version

[2] United Nations Decade on Ecosystem Restoration. 2022. Types of Ecosystem Restoration. 20 April 2022. https://www.decadeonrestoration.org/types-ecosystem-restoration;

[3] United Nations Statistics Division. 2022. SDG Indicators. New York, United Nations Department of Economic and Social Affairs. Cited 20 April 2022. https://unstats.un.org/sdgs/metadata/;

2.4 Additional data sources: commitments

In addition to global indicators and monitoring frameworks, progress of the UN Decade could be monitored through the aggregation of commitments and actions from state and non-state actors. The following potential data sources for tracking commitments and progress which could be considered alongside existing global indicators and reporting frameworks.

2.4.1 National commitments

National, or state, commitments associated with restoration activities could be assessed and analyzed to understand the scale, type and uptake of commitments made and implemented by governments throughout the UN Decade. A number of relevant resources have been developed that can be utilized, including the 2020 PBL report which provides a global summary of the restoration goals and commitments made under the Rio Conventions as well as the CBD Information Document CBD/SBI/3/INF/19 which highlights some of the key findings related to the establishment of national commitments, their purpose, how they are implemented and how their impact is assessed in relation to restoration.

In addition to these global summary resources, analyses could be carried out on:

- **National Biodiversity Strategies and Action Plans** (NBSAPs): Once the post-2020 global biodiversity framework is agreed upon, it is expected that countries will update their NBSAPs to account for the new set of goals and targets. Restoration activities already feature within NBSAPs and are likely to be included in updated versions of NBSAPs under the final post-2020 global biodiversity framework. National reports produced by Parties to the CBD could be used to track restoration activities and results. One of the new targets under negotiation at the time of writing for the post-2020 global biodiversity framework is likely to cover ecosystem restoration.

- **Nationally Determined Contributions** (NDCs) to the Paris Climate Agreement could also be assessed for progress throughout the UN Decade to showcase and track Parties progress and potentially relevant restoration plans in line with UNFCCC goals.

2.4.2 Non-state commitments

In addition to national and state level, commitments made by non-state and sub-national actors should also be considered in monitoring progress throughout the UN Decade. Information can be drawn from the Sharm El-Sheikh to Kunming Action Agenda for Nature and People (referred to as 'Action Agenda') which was launched in 2018 to respond to the increasing recognition of the role that non-state and sub-national actors can play in achieving global ambitions by 2030 for the conservation and sustainable use of biodiversity. Developed by UNEP-WCMC with support from the Ministry of Infrastructure and Water Management of the Netherlands, the Action Agenda platform will be a repository for voluntary, area-based commitments, including non-state actor commitments for ecosystem restoration, and can be used to showcase commitments through the UN Decade.

© FAO / Ricardo Domínguez

03 THE ROLE OF THE FERM

The Framework for Ecosystem Restoration Monitoring (FERM) developed by FAO includes information on the headline indicators for transparently monitoring the progress of the Decade. The FERM can also provide additional information on the progress of ecosystem restoration, as well as support countries and practitioners with technical assistance on ecosystem restoration. The FERM builds on, and complements, existing international, regional and national reporting processes, their goals, targets, criteria and indicators by providing to people, communities and countries, under one common umbrella, access to data, methodological guidance and tools to monitor ecosystem restoration. The FERM includes (at the time of writing in March 2022):

- The FERM platform (https://data.apps.fao.org/ferm/),an online web interface for geospatial data visualization at different scales. Various international, regional, national and local datasets were identified and integrated into the FERM platform through the Hand-in-Hand geospatial platform of FAO. It aims to provide a flexible and adaptive approach for any user to track ecosystem restoration monitoring. It also provides access to statistical data on the 20 headline indicators, and links to various tools and resources.

- The FERM registry (https://ferm.review.fao.org/), which provides a step-by-step user interface to navigate and populate the FERM platform. It provides support to users in defining the geographic scope of their project, characterizing it using biophysical and socio-economic variables, defining ecosystem restoration activities implemented, selecting relevant indicators for monitoring and obtaining results for the corresponding indicators and geographic area.

- The FERM dashboard (in development) for reporting and visualizing restoration progress against the indicators available in the FERM platform.

To note, the FERM aims to address interoperability of various restoration monitoring platforms and tools throughout the design and implementation stages. It is collaborating actively with various online platforms that track restoration activities, including the Restoration Barometer and Restor, to develop application programming interfaces (APIs) for sharing restoration data between platforms.

Additional data for tracking progress using the FERM may include:

1. number of restoration projects by ecosystem;

2. number of commitments by ecosystem;

3. number of UN Decade Partners;

4. number of, and area of, UN Decade Flagships; and

5. percentage of degraded or converted ecosystems that are under restoration (supporting the monitoring of progress of Target 2 of the post-2020 global biodiversity framework).

© CIFOR / Mokhamad Edliadi

04 VISION FOR REPORTING PROGRESS WITHIN THE UN DECADE ON ECOSYSTEM RESTORATION

Recognizing the following, this section proposes the vision for annual reporting through live reports and an online dashboard. UNGA Resolution 73/284 (A/RES/73/284) requests for the Secretary-General to "report to the General Assembly at its eighty-first session on the status of the implementation of the present resolution, including its contribution to the implementation of the 2030 Agenda for Sustainable Development".

4.1 Annual live report

Throughout the UN Decade, clear and evidence-based annual reporting will be critical to effectively communicate the progress of ecosystem restoration efforts towards global biophysical and socio-economic indicators.

Annual reports would aim to be:

- visual - displaying key messages vis graphical means where possible,
- interactive - including key figures from the interactive dashboard (see Section 4.2.) that draws data on the headline indicators
- user-friendly - Ability of user to navigate between different chapters to easily explore the content of the report
- evidence-based - showing links to the underlying data and evidence.

As a visual, online and interactive report, this will aim to inform and engage the broad target audience of the UN Decade including governments, private sector, civil society organizations and academia.

Proposed deliverable: Annual report produced in Q4 of 2022–2030 with a special edition for the UN General Assembly at its eighty-first session (2026) on the status of the implementation of the UN Decade on Ecosystem Restoration Resolution 73/284.

4.2 Online dashboard

To complement the annual report, a live dashboard for monitoring the progress of ecosystem restoration throughout the UN Decade will be made available to showcase the latest figures on the selected headline indicators.

The online dashboard would aim to be interactive and easily displayed:

- trends over time for the headline global indicators throughout the UN Decade (including the ability for users to toggle between indicators);
- details on indicators and data collection methodology;
- links to relevant external pages (e.g. the FERM, annual report, and UN Decade website); and
- global indicator data layers on a map (if indicators provide such spatial information).

Of note, the data sources for the different global indicators (from SDGs and other MEAs) will originate from multiple sources and organizations. As such, API links to the data sources will be required to allow for real-time updates to indicators.

The dashboard will aim to: inform and engage the broad target audience of the UN Decade including governments, private sector, civil society organizations and academia; use UN Decade design guidelines; and could be translated into selected languages.

Proposed deliverable: A live dashboard for monitoring progress of the UN Decade towards headline global indicators (2022–2030). This will be linked to the annual report to provide results.

05 RECOMMENDATIONS FOR NEXT STEPS

Based on the summary of actions to date and priorities of the Monitoring Task Force, the following areas are proposed as next steps:

- Once formalized, consideration should be given to assessing the restoration-relevant indicators within the global frameworks currently under development, specifically the post-2020 global biodiversity framework and UNFCCC.
- Consideration should be given to assessing global frameworks and associated global indicators that have not been yet been reviewed in detail, including System of Environmental Economic Accounting (SEEA) indicators, to identify complementary global indicators to help report progress for throughout the UN Decade.
- Regional-, national- and project-level indicators are an integral part of monitoring and reporting for the UN Decade. Sources should be considered and utilized during reporting to ensure that progress on all scales is captured and communicated. This includes opportunities to support, align and feed into the FERM.
- Indicators and monitoring tools and approaches focusing on restoration of all eight ecosystem/restoration types of the UN Decade should be explored and considered as they become available in order to provide full coverage of ecosystems.
- Following the selection of global indicators, timelines, processes and outputs for monitoring and reporting the progress of the UN Decade should be agreed upon and implemented.

© CIFOR / Nanang Sujana

REFERENCES

Angelov, D. 2020. *Top2vec: Distributed representations of topics*. arXiv.

Aronson, J., Goodwin, N., Orlando, L., Eisenberg, C., & Cross, A. T. 2020. A world of possibilities: six restoration strategies to support the United Nations Decade on Ecosystem Restoration. *Restoration Ecology*, 28(4): 730-736.

IPBES. 2019. *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. IPBES secretariat, Bonn, Germany. https://doi.org/10.5281/zenodo.3831673

Cooke, S. J., Bennett, J. R., & Jones, H. P. 2019. We have a long way to go if we want to realize the promise of the "Decade on Ecosystem Restoration". *Conservation Science and Practice*, 1(12): e129.

FAO, IUCN CEM & SER. (2021). *Principles for ecosystem restoration to guide the United Nations Decade 2021–2030*. Rome, FAO.

Gann, G. D., McDonald, T., Walder, B., Aronson, J., Nelson, C. R., Jonson, J., Hallett, J. G., Eisenberg, C., Guariguata, M. R., Liu, J., Hua, F., Echeverría, C., Gonzales, E., Shaw, N., Decleer, K. & Dixon, K. W. 2019. International principles and standards for the practice of ecological restoration. *Restoration Ecology*. 27(S1): S1-S46.

Harris, J. A., Hobbs, R. J., Higgs, E., & Aronson, J. 2006. Ecological restoration and global climate change. *Restoration Ecology*, 14(2): 170-176.

Holl, K. D., Crone, E. E., & Schultz, C. B. 2003. Landscape restoration: moving from generalities to methodologies. *BioScience*, 53(5): 491-502.

Jones, H. P., Jones, P. C., Barbier, E. B., Blackburn, R. C., Rey Benayas, J. M., Holl, K. D., McCrackin, M., Meli, P., Montoya, D., & Mateos, D. M. 2018. Restoration and repair of Earth's damaged ecosystems. In: *Proceedings of the Royal Society B: Biological Sciences*. Cited 2 May 2022. https://doi.org/10.1098/rspb.2017.2577

IPCC. 2017. *Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems (SR2)*. Background report for the Scoping Meeting. London, UK.

McCrackin, M. L., Jones, H. P., Jones, P. C., & Moreno-Mateos, D. 2017. Recovery of lakes and coastal marine ecosystems from eutrophication: A global meta-analysis. *Limnology and Oceanography*, 62(2): 507-518.

Sacande, M., Martucci, A., & Vollrath, A. 2021. Monitoring large-scale restoration interventions from land preparation to biomass growth in the Sahel. *Remote Sensing*, 13(18): 3767.

United Nations Environment Programme. 2021. Becoming #GenerationRestoration: Ecosystem restoration for people, nature and climate. *United Nations Decade on Ecosystem Restoration*. Cited 2 May 2022. https://www.unep.org/interactive/ecosystem-restoration-people-nature-climate/en/index.php

United Nations. 2021. *The United Nations Decade on Ecosystem Restoration Strategy*. New York. https://wedocs.unep.org/bitstream/handle/20.500.11822/31813/ERDStrat.pdf?sequence=1&isAllowed=y

ANNEX

TABLE A

Full list of indicators identified for monitoring the UN Decade

Indicator code [Sustainable Development Goal (SDG[3])]	Indicator name	Decade's ecosystem restoration's types[2]	Update frequency	Institution
SDG[3] 1.1.1	Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural)	All types	Annually	World Bank
SDG[3] 1.2.1	Proportion of population living below the national poverty line, by sex and age	All types	Twice a year	World Bank
SDG[3] 1.2.2	Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	All types	Country dependent	World Bank; United Nations Children's Fund (UNICEF); United Nations Development Programme (UNDP)
SDG[3] 1.4.1	Proportion of population living in households with access to basic services	All types	Every 3-5 years	United Nations Human Settlements Programme (UN Habitat)
SDG[3] 1.4.2	Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure	All types	No fixed releases	UN Habitat; World Bank
SDG[3] 2.1.1	Prevalence of undernourishment	All types	Annually	Food and Agriculture Organization of the United Nations (FAO)
SDG[3] 2.1.2	Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	All types	Annually	FAO
SDG[3] 2.2.1	Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age	All types	Annually	UNICEF; World Health Organization (WHO); World Bank
SDG[3] 2.3.1	Productivity of small-scale food producers (agricultural output per labour day, PPP)	Farmlands	Every 2 years	FAO
SDG[3] 2.3.2	Average income of small-scale food producers, by sex and indigenous status	Farmlands	Every 3 years	FAO
SDG[3] 2.4.1	Proportion of agricultural area under productive and sustainable agriculture	Farmlands	Every 3 years	FAO
SDG[3] 2.5.1	Number of (a) plant and (b) animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities	Farmlands	Annually	FAO
SDG[3] 2.a.2	Total official flows (official development assistance plus other official flows) to the agriculture sector	All types	Annually	Organisation for Economic Co-operation and Development (OECD)
SDG[3] 3.2.1	Under-five mortality rate	All types	Annually	UNICEF
SDG[3] 3.3.3	Malaria incidence per 1,000 population	All types	Annually	WHO
SDG[3] 3.3.5	Number of people requiring interventions against neglected tropical diseases	All types	Annually	WHO
SDG[3] 3.9.1	Mortality rate attributed to household and ambient air pollution	All types	NA	WHO
SDG[3] 3.9.2	Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)	All types	Ongoing	WHO
SDG[3] 4.1.1	Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex	All types	Annually	United Nations Educational, Scientific and Cultural Organization Institute of Statistics (UNESCO-UIS)
SDG[3] 4.4.1	Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill	All types	Twice a year	International Telecommunication Union (ITU)
SDG[3] 5.1.1	Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex	All types	Every 2 years	UN Women; World Bank; OECD

Indicator code [Sustainable Development Goal (SDG[3])]	Indicator name	Decade's ecosystem restoration's types[2]	Update frequency	Institution
SDG[3] 5.2.1	Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age	All types	Every 2 years	UNICEF;UN Women; United Nations Population Fund (UNFPA);WHO; United Nations Office on Drugs and Crime (UNODC); United Nations Statistics Division (UNSD)
SDG[3] 5.6.1	Proportion of women aged 15–49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care	All types	Annually	UNFPA
SDG[3] 5.a.1	Proportion of people with ownership or secure rights over agricultural land (out of total agricultural population by sex (%)	Farmlands	Country dependent	FAO
SDG[3] 5.a.2	Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control	All types	Every 2 years	FAO
SDG[3] 6.1.1	Proportion of population using safely managed drinking water services	All types	Every 2 years	UNICEF; WHO
SDG[3] 6.2.1	Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water	All types	Every 2 years	UNICEF; WHO
SDG[3] 6.3.2	Proportion of bodies of water with good ambient water quality	Freshwater	Every 3 years	United Nations Environment Programme (UNEP)
SDG[3] 6.4.2	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	Freshwater; Farmlands; Mountains; Grasslands, Shrublands and Savannahs; Peatlands	Annually	FAO
SDG[3] 6.5.1	Degree of integrated water resources management	Freshwater	Every 3-4 years	UNEP
SDG[3] 6.6.1	Change in the extent of water-related ecosystems over time	Freshwater; Farmlands; Mountains; Grasslands, Shrublands and Savannahs; Peatlands	Annually	UNEP; RAMSAR[1]
SDG[3] 6.a.1	Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan	Freshwater	Annually	WHO; UNEP; OECD
SDG[3] 6.b.1	Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management	All types	Every 2 years	WHO & Ramsar Convention Secretariat; UNEP; OECD
SDG[3] 7.1.1	Proportion of population with access to electricity	All types	Annually	World Bank
SDG[3] 7.1.2	Proportion of population with primary reliance on clean fuels and technology	All types	Annually	WHO
SDG[3] 7.2.1	Renewable energy share in the total final energy consumption	All types	Annually	International Energy Agency (IEA); UNSD; International Renewable Energy Agency (IRENA)
SDG[3] 8.1.1	Annual growth rate of real GDP per capita	All types	Annually	UNSD
SDG[3] 8.10.2	Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider	All types	Every 3 years	World Bank
SDG[3] 8.3.1	Proportion of informal employment in total employment, by sector and sex	All types	Annually	ILO
SDG[3] 8.5.2	Unemployment rate, by sex, age and persons with disabilities	All types	Annually	ILO
SDG[3] 8.8.2	Level of national compliance with labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status	All types	Annually	ILO
SDG[3] 8.b.1	Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy	All types	Annually	ILO
SDG[3] 9.1.1	Proportion of the rural population who live within 2 km of an all-season road	All types	Annually	World Bank

Indicator code [Sustainable Development Goal (SDG[3])]	Indicator name	Decade's ecosystem restoration's types[2]	Update frequency	Institution
SDG[3] 9.1.2	Passenger and freight volumes, by mode of transport	All types	Annually	International Civil Aviation Organisation (ICAO); ITF; UNECE; UNCTAD
SDG[3] 9.c.1	Proportion of population covered by a mobile network, by technology	All types	Twice a year	ITU
SDG[3] 10.2.1	Proportion of people living below 50 per cent of median income, by sex, age and persons with disabilities	All types	Annually	World Bank
SDG[3] 10.3.1	Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law	All types	Annually	Office of the United Nations High Commissioner for Human Rights (OHCHR)
SDG[3] 10.b.1	Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance, foreign direct investment and other flows)	All types	Annually	OECD
SDG[3] 11.1.1	Proportion of urban population living in slums, informal settlements or inadequate housing	Urban areas	Every 3 years	UN Habitat
SDG[3] 11.3.1	Ratio of land consumption rate to population growth rate	Urban areas	Every 3 years	UN Habitat
SDG[3] 11.4.1	Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)	All types	Annually	UNESCO-UIS
SDG[3] 11.6.1	Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal solid waste generated by cities	Urban areas	Annually	UN Habitat; UNSD
SDG[3] 11.a.1	Number of countries that have national urban politics or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development; and (c) increase local fiscal space	Urban areas	Annually from 2020	UNESCO-UIS
SDG[3] 12.b.1	Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability	All types	Annually	United Nations World Tourism Organization (UNWTO)
SDG[3] 13.1.2	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	All types	Unknown	United Nations Office for Disaster Risk Reduction (UNDRR)
SDG[3] 13.1.3	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	All types	Annually	UNDRR
SDG[3] 13.2.1	Number of countries with nationally determined contributions, long-term strategies, national adaptation plans, and strategies as reported in adaptation communications and national communications	All types	Annually from 2021	United Nations Framework Convention on Climate change (UNFCCC)
SDG[3] 13.2.2	"Total greenhouse gas emissions per year" as reported to UNFCCC as part of the enhanced transparency framework (ETF) mechanism	All types	Annually (Annex I Parties); Every 2 years (Non-Annex I Parties)	UNFCCC
SDG[3] 14.1.1a	Index of coastal eutrophication	Oceans and coasts	Unknown	UNEP
SDG[3] 14.2.1	Number of countries using ecosystem-based approaches to managing marine areas	Oceans and coasts	Every 5 years	UNEP
SDG[3] 14.4.1	Proportion of fish stocks within biologically sustainable levels	Oceans and coasts	Every 2 years	FAO
SDG[3] 14.5.1	Coverage of protected areas in relation to marine areas	Oceans and coasts	Annually	United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC); Bird Life International (BLI); International Union for Conservation of Nature (IUCN)
SDG[3] 14.b.1	Degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries	Oceans and coasts	Every 2 years from 2018	FAO
SDG[3] 15.1.1	Forest area as a proportion of total land area	Forests	Annually	FAO

Indicator code [Sustainable Development Goal (SDG[3])]	Indicator name	Decade's ecosystem restoration's types[2]	Update frequency	Institution
SDG[3] 15.1.2	Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	Forests; Freshwater; Grasslands, Shrublands and Savannahs; Mountains; Peatlands	Annually	UNEP-WCMC; BLI; IUCN
SDG[3] 15.2.1	Progress towards sustainable forest management	Forests	Annually from 2015	FAO
SDG[3] 15.3.1 (UNCCD)	Proportion of land that is degraded over total land area	Farmland; Forests; Grasslands, Shrublands and Savannahs; Peatlands	Every 4 years from 2018	UNCCD; FAO; Convention on Biological Diversity (CBD); UNSD; UNEP; UNFCCC
SDG[3] 15.4.2	Mountain Green Cover Index	Mountains	Every 3 years	FAO
SDG[3] 15.5.1	Red List Index	All types	Annually	BLI; IUCN
SDG[3] 15.7.1	Proportion of traded wildlife that was poached or illicitly trafficked	All types	Annually	UNODC
SDG[3] 16.10.2	Number of countries that adopt and implement constitutional, statutory and/or policy guarantees for public access to information	All types	Annually	United Nations Educational, Scientific and Cultural Organization (UNESCO)
SDG[3] 16.2.2	Number of victims of human trafficking per 100,000 population, by sex, age and form of exploitation	All types	Annually	UNODC
SDG[3] 16.5.1	Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months	All types	Annually	UNODC
SDG[3] 16.6.1	Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)	All types	Annually	World Bank
SDG[3] 16.7.2	Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group	All types	Every 2 years from 2021	UNDP
SDG[3] 17.11.1	Developing countries' and least developed countries' share of global exports	All types	Annually	International Trade Centre (ITC); WTO; UNCTAD
SDG[3] 17.14.1	Number of countries with mechanisms in place to enhance policy coherence of sustainable development	All types	Every 2 years from 2020	UNEP
SDG[3] 17.19.2a	Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years	All types	Unknown	UNSD
Ramsar[1] 8.5	Percentage of countries reporting change in the ecological character of wetlands	Freshwater; Peatlands; Oceans and coasts; Farmlands; Mountains; Grasslands, Shrublands and Savannahs	Every 3 years	Secretariat of the Convention on Wetlands
Ramsar[1] 8.6 (SDG 6.6.1)	Extent of wetlands	Freshwater; Peatlands; Oceans and coasts; Farmlands; Mountains; Grasslands, Shrublands and Savannahs	Every 3 years	Secretariat of the Convention on Wetlands
Ramsar[1] 12.1	Percentage of Parties that have identified priority sites for wetland restoration	Freshwater; Peatlands; Oceans and coasts; Farmlands; Mountains; Grasslands, Shrublands and Savannahs	Every 3 years	Secretariat of the Convention on Wetlands
Ramsar[1] 12.2	Percentage of Parties that have effectively implemented restoration or rehabilitation programmes, plans or projects	Freshwater; Peatlands; Oceans and coasts; Farmlands; Mountains; Grasslands, Shrublands and Savannahs	Every 3 years	Secretariat of the Convention on Wetlands

Notes: UN Decade on Ecosystem Restoration focal ecosystems include: Farmlands; Forests; Freshwater; Grasslands, Shrublands, Savannahs; Mountains; Oceans and coasts; Peatlands; and Urban areas.

Sources: [1] Ramsar. 2021. National Report on the Implementation of the Ramsar Convention on Wetlands. 20 April 2022. https://www.ramsar.org/document/national-report-form-for-cop14-offline-version

[2] United Nations Decade on Ecosystem Restoration. 2022. Types of Ecosystem Restoration. 20 April 2022. https://www.decadeonrestoration.org/types-ecosystem-restoration;

[3] United Nations Statistics Division. 2022. SDG Indicators. New York, United Nations Department of Economic and Social Affairs. Cited 20 April 2022. https://unstats.un.org/sdgs/metadata/;

#GenerationRestoration

CB9982EN/1/05.22